General

Guideline Title

Clinical practice guidelines on arterial hypertension. 2007 update.

Bibliographic Source(s)

Rotaeche R, Aguirrezabala J, BalaguÃ© L, GorroÃ±ogoitia A, Idarreta I, MariÃ±elarena E, Mozo C, Ruiz de Velasco E, Torcal J. Clinical practice guidelines on arterial hypertension. 2007 update. Vitoria-Gasteiz: Basque Health System-Osakidetza; 2008. 135 p.

Guideline Status

This is the current release of the guideline.

The Basque Health System-Osakidetza reaffirmed the currency of this guideline in June 2013.

Recommendations

Major Recommendations

Grades of recommendations (A-D) and levels of evidence (1-4) are defined at the end of the "Major Recommendations" field. Any aspects that the authors of the guideline considered worth highlighting as an area in which conclusive evidence was lacking, or because it addressed particularly relevant clinical aspects are marked as good practice points (GPP). New recommendations and those substantially modified with regard to the guideline's previous versions are marked with the year (2007).

Initial Evaluation of Hypertensive Patients

Screening for Arterial Hypertension (AHT)

B: Screening by means of an opportunist AHT strategy through periodic measuring of the clinical blood pressure (BP) is recommended.

D: Following the Program of Preventive Activities and of Promotion of Health (PAPPS) recommendations concerning AHT screening is advised: measuring BP at least once before reaching 14 years of age; every 4 or 5 years after 14 years of age until 40, and every 2 years from 40 years of age, taking advantage of occasional consultations.

GPP: The BP measurements in health care centers are preferably taken by the nursing staff.

Definition and Classification of AHT according to BP Numbers and Cardiovascular Risk

D (2007): Pharmacological treatment of level-1 AHT with target organ affection regardless of cardiovascular risk is recommended.

C: The use of the Registre Gironi del Cor (REGICOR) tables in the calculation of coronary risk in hypertensive patients is recommended.

D: Pharmacological treatment of level-1 AHT with coronary risk ≥10% according to the REGICOR table is recommended.

D: Patients with level-1 AHT with coronary risk <10% must be considered for pharmacological treatment depending on other additional risk factors.

D (2007): Patients with level-1 AHT with low coronary risk (<10%) and without other additional risk factors, must be treated with non-pharmacological measures for a year, after which the need for pharmacological treatment must be re-evaluated.

AHT Diagnosis

Ambulatory Blood Pressure Monitoring (AMPM): Normal Values and Indications

D: The ABPM must be conducted with independently validated instruments according to the international standards of the Association for the Advancement of Medical Instrumentation (AAMI), of the British Hypertension Society (BHS) or European Society of Hypertension (ESH).

B: The ABPM is a method that can be useful in the diagnosis of AHT since its increase is correlated with cardiovascular morbimortality.

B: The mean BP numbers over a period of 24 h measured by means of ABPM that define a person as hypertensive are SBP ≥135 mm Hg and DBP ≥80 mm Hg.

D: The mean daytime BP numbers measured by means of ABPM that define a person as hypertensive are SBP ≥135 mm Hg and DBP ≥85 mm Hg.

D: The mean night time BP numbers measured by means of ABPM that define a person as hypertensive are SBP ≥120 mm Hg and DBP ≥75 mm Hg.

Self-Measurement of Blood Pressure (SMBP): Normal Values and Indications

B: The SMBP must be done independently with instruments validated according to the international standards of the AAMI, BHS or ESH.

B: The SMBP is a method that can be useful in the diagnosis of AHT, since the values obtained by means of this technique are correlated to cardiovascular morbimortality.

B: The BP numbers measured by SMBP that define a patient as hypertensive are systolic blood pressure (SBP) ≥135 mmHg or diastolic blood pressure (DBP) ≥85 mmHg.

Number of BP Readings Necessary with SMBP

D (2007): When the SMBP is used for diagnostic purposes, a minimum schedule of BP self measurements of at least three days with the readings taken every 12 hours is advised. The readings of the first day may not be taken into consideration.

D (2007): When the SMBP is used in the monitoring of the hypertensive patient, a minimum schedule of BP self-measurements on three days with three readings taken every 12 hours during the week prior to the medical consultation is advised.

SMBP in the Diagnosis of Isolated Clinical Hypertension or White Coat AHT

B: When the SMBP is used in light of the suspicion of white coat hypertension (WCH), the findings of some numbers higher than 145/95 mm Hg diagnose a hypertensive person, while lower numbers require conducting an ABPM.

Clinical Significance of WCH

D: The monitoring of WCH must include non-pharmacological measures and the periodic evaluation of cardiovascular risk and of target organ affection.

C: Patients with isolated clinical AHT must be controlled by taking their BP in the doctor's office and by ABPM, if necessary, to identify its possible evolution to maintained AHT.

Initial Study of the Hypertensive Patient

Measuring Microalbuminuria in the Hypertensive Patient

D: Measuring the albumin/creatinine ratio in hypertensive patients in stage 1 is recommended.

D (2007): Conducting an echocardiogram is not recommended as initial study in all hypertensive patients.

D: The initial study of the hypertensive patient is comprised by the physical cardiovascular examination, blood analysis (haemogram, glycaemia, creatinine, sodium, potassium, total cholesterol, triglycerides, high-density lipoprotein [HDL], low-density lipoprotein [LDL], sediment and albumin/creatinine ratio), ocular fundus and electrocardiography (ECG).

Monitoring Proposal

Target Numbers

D: SBP numbers <140 mm Hg and DBP <90 mm Hg are recommended as the target of the treatment of the hypertensive patient.

Frequency of Controls

B: A half-yearly consultation is proposed to monitor hypertensive patients, once the target objective has been achieved.

D: In some patients selected according to their cardiovascular risk, target organ affection or compliance, this frequency can be quarterly.

Pharmacological Therapeutic Compliance

A: The antihypertensive pharmacological treatment has to be in a single daily dose whenever possible.

B (2007): The health care professionals that treat the hypertensive patients must use different combined strategies that go beyond brief advice in order to improve the pharmacological therapeutic compliance.

A: Simplifying the dosage guidelines (reduction of dosage, combination of drugs in a single tablet, etc.) in order to enhance compliance of antihypertensive treatments is recommended.

Treatment of Hypertensive Patients

Non-pharmacological Measures in the Treatment of AHT

Consumption of Salt

A: The patients with essential AHT must receive professional advice in order to decrease the sodium content of the diet. This advice must be given even to those patients that follow a heart-healthy diet. This advice is especially important in the population over 45 years of age.

Physical Exercise

A: Hypertensive patients should receive advice through interventions structured on the practice of physical exercise of aerobic intensity adapted to their characteristics. The exercise should include, at least, three weekly sessions of 45-60 minutes of duration.

Weight Control

A: The patients with essential AHT, including those that take antihypertensive drugs, must receive advice from the professionals on losing weight.

Stress Control

B: Controlling stress is not recommended as a general measure for the treatment of AHT.

Consumption of Alcohol

A (2007): Hypertensive excessive drinkers must receive advice on reducing alcohol consumption. The objective is to reduce the intake of alcohol by at least 60%.

B/D: Male hypertensive drinkers who consume amounts less than 17 units/week of alcohol do not require changes in their habits because of the possible cardioprotective effect of the moderate consumption of alcohol (B). This limit will be 11 units/week for women (D).

Consumption of Potassium

A: A diet rich in fruit and vegetables with high potassium content is recommended for all patients with hypertension. Potassium supplements, after an individualized evaluation, can be recommended to some patients.

Consumption of Calcium and Magnesium

A (2007): Neither calcium or magnesium supplements are generally recommended for hypertensive patients.

Consumption of Omega-3 Fatty Acids

B (2007): The inclusion in the diet of food rich in Omega-3 fatty acids such as high-oil fish (3 times a week) can be recommended.

Consumption of Fibre

B (2007): The consumption of fibre in the diet is recommended, the same as for the general population.

Consumption of Coffee

B (2007): It is not necessary to eliminate coffee in the diet of hypertensive patients; only the consumption of more than five cups a day can have effects on BP.

Life-Style Changes: Combination of Several Non-pharmacological Measures

A (2007): The combination of non-pharmacological measures is not effective in decreasing BP numbers.

D (2007): The complexity of complying with it requires it to be proposed individually.

Educational or the Organization's Interventions

A (2007): The organized care of hypertensive patients that also includes educational interventions and promotion of self-care is recommended.

Pharmacological Treatment of AHT in Patients with No Associated Disease

A: The treatment of hypertension is recommended independently of gender. With respect to age, it seems to be consistent in treating both young persons and adults under 80 years of age.

Diuretics

A: In the initial treatment of uncomplicated AHT, thiazide diuretics at low doses are the drugs of first choice ahead of the remainder of the families of antihypertensives (angiotensin-converting enzyme inhibitors [ACEIs], angiotensin II receptor antagonists [ARAs II], and calcium antagonists), in young hypertensive patients as well as those of a more advanced age and in isolated systolic AHT. They are also of choice in the initial treatment of hypertension in stages 1 and 2 associated with an additional risk factor.

Beta Blockers

A (2007): The use of beta blockers is not recommended as front-line drugs in the initial treatment of uncomplicated AHT.

ACEI

B: ACEIs can be used as alternative drugs to the diuretics with uncomplicated AHT, and in absence of stenosis of the renal artery.

Calcium Antagonists

A: Dihydropyridines are an effective alternative to thiazide diuretics for the treatment of isolated systolic AHT in patients over 60 years of age.

B (2007): Calcium antagonists can be an alternative treatment to the diuretics in uncomplicated hypertension.

Alpha Blockers

A: The alpha blockers are not recommended as treatment of first choice in single-drug therapy.

B: The use of alpha blockers in association must be reserved for cases in which the other combinations of drugs have failed.

ARA II

B (2007): ARA II are not drugs of first choice in uncomplicated AHT, although they can be used as an alternative to the ACEIs in the case of intolerance.

Abandonment Because of Adverse Effects

B: It is necessary to take into account the profile of adverse effects in the choice of antihypertensive drugs.

B (2007): When antihypertensive associations are considered, the diuretics, beta blockers and calcium antagonists can be used at half the standard dosage in order to minimize the adverse effects, keeping the ACEIs and ARA II at the usual dosage.

Pharmacological Treatment of AHT in the Elderly

A (2007): In patients between 60-80 years, it is recommended to follow the general guidelines of the antihypertensive treatment.

A (2007): In patients ≥80 years with SBP ≥160 mm Hg, indapamide is recommended as initial pharmacological treatment, adding perindopril up to 4 mg if it is necessary to control the BP.

D (2007): In patients over 80 years of age, it is recommended to continue with the established treatments if they are well tolerated. In special situations the recommendations of the specific sections of this clinical practice guideline will be followed.

Pharmacological Treatment in Special Situations

Diabetes Mellitus without Nephropathy

B/D (2007): In the patients with essential AHT and Type 2 diabetes mellitus without nephropathy, treatment target numbers of SBP <140 mm Hg (D) and DBP <80 mm Hg (B) are recommended.

Pharmacological Treatment

A (2007): Thiazide diuretics or ACEIs are recommended as treatment of choice in hypertensive patients with Type 2 diabetes mellitus and the dihydropyridinic calcium antagonists and ARA II as alternative treatment.

B (2007): Beta blockers are not recommended in the diabetic hypertensive patient, unless there is a firm indication for their use, such as ischaemic cardiopathy or cardiac insufficiency.

B: Elderly diabetic patients with isolated systolic AHT must be treated preferably with diuretics at low doses or with long-acting dihydropyridines (nitrendipine).

Diabetic Nephropathy

D (2007): Patients with AHT and diabetic nephropathy must receive treatment to lower their BP until achieving BP under 140/80 mmHg.

Pharmacological Treatment

A: The hypertensive patients with diabetes mellitus and nephropathy must be treated with an ACEI. ARA II is the alternative treatment.

Non-diabetic Nephropathy

D (2007): In patients with non-diabetic nephropathy and gross proteinuria (>1 g/day), keeping the BP under 130/80 mm Hg as long as they tolerate the treatment is recommended. In case of proteinuria <1 g/day the proposed numbers are 130/85 mm Hg.

Pharmacological Treatment

A: The use of ACEI is recommended as the initial treatment for hypertensive patients with non-diabetic nephropathy.

B: In case of intolerance (secondary effects that require withdrawing the drug) of ACEIs, an ARA II is recommended as an alternative initial treatment.

GPP: The ACEI or ARA II could be used whenever there is no bilateral stenosis of the renal arteries or unilateral stenosis in a single kidney.

GPP: The combination of ACEI with ARA II can be useful in certain patients whose selection must be done in the specialized care area.

Congestive Cardiac Insufficiency (CCI)

A: All hypertensive patients with CCI independently of its aetiology or functional class should be treated with ACEIs, as long as they do not present contraindications and their use is tolerated. In patients that do not tolerate their use, an ARA II is recommended.

A: All hypertensive patients with CCI in functional class II-IV, in stable phase and with previous standard treatment (ACEI, diuretics and/or digoxin) should be treated with beta blockers.

GPP: The titration of the dosage of beta blockers should be done slowly and weekly to improve tolerance.

GPP: The recommended beta blockers are: bisoprolol, carvedilol, metoprolol retard, nebivolol.

B* (2007): The ACEI+ARA II combination (valsartan or candesartan) is recommended as an alternative in hypertensive patients with CCI in which beta blockers are not tolerated or are contraindicated.

GPP (2007): Monitoring of the adverse effects of the ACEI+ARA II combination (hypotension, hyperpotassemia and impairment of renal function) is recommended.

B* (2007): In case of poor control of AHT, despite optimizing the dosage of ACEI, beta blocker and diuretic, candesartan can be added.

B: Dihydropyridines should not be used in hypertensive patients with CCI as part of the standard treatment.

GPP: Only long-acting dihydropyridines (amlodipine, felodipine) should be used if additional drugs are needed to control the BP or as anti-anginal drugs.

*The recommendation level is decreased due to being an analysis of subgroups.

Ischaemic Cardiopathy

A: Beta blockers are the drugs of choice in the treatment of AHT in hypertensive patients with a history of acute myocardial infarction (AMI).

B*: Beta blockers are the drugs of choice in AHT treatment in patients with stable angina.

A: All hypertensive patients with previous AMI with or without left ventricular systolic dysfunction must be treated with ACEIs if there is no contraindication or intolerance of them.

A: An ARA II is recommended in all hypertensive patients with previous AMI and systolic dysfunction with intolerance of ACEIs.

B: The calcium antagonists should not form part of the initial treatment in hypertensive treatments that have suffered an AMI. They are recommended only if they are necessary as part of the antihypertensive treatment in achieving the target BP.

A: In all the patients with ischaemic cardiopathy and arterial hypertension, adding an ACEI to the treatment must be firmly considered.

B (2007): In hypertensive patients with ischaemic cardiopathy, calcium antagonists (verapamil, amlodipine and nifedipine gastrointestinal therapeutic system (GITS) can be used as an alternative to the beta blockers.

B (2007): If another drug is required to be added to the beta blocker in hypertensive patients with ischaemic cardiopathy (to control the symptoms or to achieve the BP target numbers), the use of a dihydropyridine is recommended.

B: Immediate-release nifedipine should not be used in hypertensive patients with angina.

GPP: If an ACEI is added to the hypertensive treatment with ischaemic cardiopathy, attempts should be made to reach the dosages used in the clinical trials (ramipril 10 mg, perindopril 8 mg), especially if the desired target BP has not been reached.

*It cannot be established conclusively that there are no differences between the beta blockers and the calcium antagonists as regards morbimortality.

Cerebrovascular Disease

A: All hypertensive patients that have suffered a cerebrovascular accident (CVA) must be treated with antihypertensives.

A: The combination of indapamide with perindopril is appropriate for the treatment of hypertensive patients with previous CVA.

Peripheral Arteriopathy

B: The AHT treatment in patients with peripheral arteriopathy should follow the general recommendations.

B: The cardioselective beta blockers can be used in stable peripheral arteriopathy in the mild or moderate phase whenever there is a firm indication for use.

Left Ventricular Hypertrophy

D (2007): The treatment of AHT if there is left ventricular hypertrophy must follow the general recommendations.

Asthma and Chronic Obstructive Pulmonary Disease (COPD)

B: The general recommendations for antihypertensive treatment should be followed in patients with asthma or COPD.

B: In patients with asthma or COPD in mild or moderate phases, the cardioselective beta blockers can be used with precaution, whenever there is a firm indication for their use (ischaemic cardiopathy or congestive cardiac insufficiency).

GPP: In case of severe COPD and asthma associated with ischaemic cardiopathy, the use of beta blockers must be individualized, evaluating the benefits and risks of the measure.

Combined Drug Therapy

A (2007): When single-drug therapy is insufficient, it is better to combine antihypertensives at half dosages in the case of diuretics, beta blockers or calcium antagonists or with usual dosages of ACEI or ARA II, than to double the single-drug dosage.

D (2007): The choice of the combination of antihypertensive drugs among the associations on which studies have been conducted will be according to professional criteria, taking into account their pharmacological characteristics and their profile of adverse effects.

A (2007): The use of the ACEI+ARA II combination is not recommended for increasing the degree of decrease of the BP.

Hypertensive Urgency

C (2007): In view of a high AHT number in an asymptomatic patient or with symptoms that do not suggest target organ affection, this value must be confirmed with various subsequent measurements, after eliminating aggravating factors.

D (2007): In view of high AHT in an asymptomatic patient or without suggestive signs of target organ affection, a gradual decrease in BP should be attempted, seeing the patient in the following days to adjust the treatment.

Definitions:

Levels of Evidence

Scottish Intercollegiate Guidelines Network (SIGN) Levels of Evidence

1++ High-quality meta-analyses, systematic reviews of clinical trials or high quality clinical trials with very little risk of bias.

1+ Well conducted meta-analyses, systematic reviews of clinical trials or well conducted clinical trials with little risk of bias.

1- Meta-analyses, systematic reviews of clinical trials or clinical trials with a high risk of bias.

2++ High-quality systematic reviews of cohort or of cases and controls. Cohort studies of cases and controls with very low risk of bias and with high probability of establishing a causal relation.

2+ Well-conducted cohort studies or those of cases and controls with low risk of bias and with a moderate probability of establishing a causal relation.

2- Cohort studies or cases and controls with a high risk of bias and significant risk that the relation is not causal.

3 Non-analytic studies, such as reports of cases and series.

4 Experts' opinions.

*Levels of Evidence for Diagnostic Studies**

Ia Systematic review with homogeneity in Level 1 studies

Ib Level 1 studies

II Level 2 studies; systematic review of Level 2 studies

III Level 3 studies; systematic review of Level 3 studies

IV Consensus, experts' opinions without explicit critical evaluation

Level 1 Studies

They achieve:

- Masked comparison with valid reference evidence ("gold standard")
- Adequate patient spectrum

Level 2 Studies

They present only one of the following biases:

- Non-representative population (the sample does not reflect the population where the sample will be applied)
- Inadequate comparison with the reference standard ("gold standard") (the sample being evaluated is part of the gold standard or the result of the evidence being evaluated has influence on the performance of the gold standard)
- Non-masked comparison
- Case control studies

Level 3 Studies

They present two or more of the highlighted criteria in level 2 studies

Grades of Recommendation

Scottish Intercollegiate Guidelines Network (SIGN) Grades of Recommendation

A - At least one meta-analysis, systematic review or clinical study classified as 1++ and directly applicable to the guidelines' target population; or a volume of evidence comprised by studies classified as 1+ and with great consistency between them.

B - A volume of evidence comprised by studies classified as 2++, directly applicable to the guidelines' target population and that shows great consistency among them; or evidence extrapolated from studies classified as 1++ or 1+.

C - A volume of evidence comprised by studies classified as 2+ directly applicable to the guidelines' target population which demonstrates great consistency among them; or evidence extrapolated from studies classified as 2++.

D - Evidence of level 3 or 4; or evidence extrapolated from studies classified as 2+.

GPP (Good Clinical Practice) - Recommended practice based on clinical experience and the consensus of the editing team.*

*Upon occasion, the developing team notices important practical aspects that are necessary to highlight and for which there is probably no evidence. In general, they are related to an aspect of the treatment considered as good clinical practice that no one would normally question; they are aspects valued as points of good clinical practice. These messages are not an alternative to the recommendations based on the evidence, but must be considered only when there is no other way of highlighting said aspect.

*Grades of Recommendation for Diagnostic Studies***

A Evidence level 1a or 1b

B Evidence level 2

C Evidence level 3

D Evidence level 4

**Adapted from the *Oxford Centre for Evidence-based Medicine Levels of Evidence* and the Centre for Reviews and Dissemination *Report Number 4* (2001)

Clinical Algorithm(s)

The following clinical algorithms are provided in the original guideline document:

- Initial study and monitoring of hypertensive patients
- SMBP in the diagnosis of WCH

Scope

Disease/Condition(s)

Arterial hypertension

Guideline Category

Diagnosis

Management

Risk Assessment

Screening

Treatment

Clinical Specialty

Cardiology

Family Practice

Internal Medicine

Nephrology

Intended Users

Advanced Practice Nurses

Health Care Providers

Nurses

Physician Assistants

Physicians

Guideline Objective(s)

To serve as an instrument to improve health care for hypertensive persons within the framework of primary care

Target Population

Adult patients with hypertension

Note: This guideline does not address childhood arterial hypertension (AHT), AHT during pregnancy, or the study of secondary AHT.

Interventions and Practices Considered

Diagnosis/Screening/Evaluation

1. Screening for arterial hypertension (AHT)
    - Definition and classification of AHT
    - Ambulatory blood pressure monitoring (ABPM)
    - Self-measurement of blood pressure (SMBP)
2. Diagnosis of white coat hypertension
3. Measuring microalbuminuria
4. Monitoring and establishing target numbers
5. Improving pharmacological therapeutic compliance

Treatment

1. Non-pharmacological measures
    - Consumption of salt
    - Physical exercise
    - Weight control
    - Stress control (not recommended)
    - Consumption of alcohol
    - Consumption of potassium
    - Consumption of calcium and magnesium (not recommended)
    - Consumption of omega-3 fatty acids
    - Consumption of fiber
    - Consumption of coffee
2. Lifestyle changes: combination of several non-pharmacological measures (not recommended)
3. Educational or organization's interventions
4. Pharmacological treatment of AHT in patients with no associated disease
    - Diuretics
    - Beta blockers
    - Angiotensin-converting enzyme inhibitors (ACEIs)
    - Calcium antagonists
    - Alpha blockers
    - Angiotensin II receptor antagonists (ARAs II)
5. Pharmacological treatment in special populations (i.e., the elderly)
6. Pharmacological treatment in special situations
    - Diabetes mellitus without nephropathy
    - Diabetic nephropathy
    - Non-diabetic nephropathy
    - Congestive cardiac insufficiency
    - Ischaemic cardiopathy
    - Cerebrovascular disease
    - Peripheral arteriopathy
    - Left ventricular hypertrophy
    - Asthma and chronic obstructive pulmonary disease (COPD)
7. Combined drug therapy
8. Management of hypertensive urgency

Major Outcomes Considered

- Total cardiovascular risk
- Morbidity and mortality
- Left ventricular hypertrophy
- Therapeutic compliance
- Reduction in systolic and diastolic blood pressure
- Adverse effects of treatment

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

2008 Original Guideline

This work has attempted to bring together the best evidence on the questions posed on the care of the hypertensive patient. The update was done according to a structured plan from the clinical practice guideline (CPG) on arterial hypertension (AHT) published by Osakidetza in 2002, following the same methodological principles as in the original version.

After the formation of the CPG editing team and of a "committee of experts" in AHT, a list of clinical questions was drawn up starting principally with the questions of the previous version with the inclusion of proposals by the editing team after group discussions and the proposals of the committee of experts through a previously designed instrument.

Previously, at the start of the work, some "base" CPGs were selected by applying the Appraisal of Guidelines for Research & Evaluation (AGREE) instrument to different national and international CPGs on AHT published in the 2002-2006 interval.

The three guidelines that obtained the highest score based on the AGREE instrument were: the Canadian CPG, the one from the National Institute of Clinical Excellence (NICE), and the British Hypertension Society (BHS) guidelines. These three CPGs were used in the successive steps.

For the new questions, not included in the 2002 CPG, these CPGs were initially consulted. The following possibilities could occur:

- Question answered and updated in the base guidelines
- Question with the need to be updated
- Question not answered

For the questions included in the previous version, the bibliography provided by the committee of experts and that included in the selected CPGs were used and the systematic search of the literature limited to the 2002-2007 period was updated. A bibliographic alert service was maintained to incorporate relevant studies up to the time of publishing the CPG.

For all the searches, the information sources used were: Clinical Evidence, Evidence-Based Reviews, Cochrane Library, Medline, Embase, Índice Bibliográfico Español en Ciencias de la Salud (ÍBECS), UpToDate and Trip database. The publications were prioritized according to the following order: systematic reviews, clinical trials, cohort studies, case-control studies, descriptive studies and experts' opinion.

2013 Reaffirmation

Medline, Embase, the Cochrane Library, Evidence Updates, UpToDate, Dunamed, Clinical Evidence and the TRIP Database were searched for literature published from 2008 to June 2013.

The developer performed a literature search of primary and secondary sources, clinical practice guidelines (CPGs), clinical trials and systematic reviews. The developer also screened references included in systematic reviews and references of relevant articles were hand-searched for additional studies.

Number of Source Documents

Not stated

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Levels of Evidence

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- Non-masked comparison
- Case control studies

Level 3 Studies

They present two or more of the highlighted criteria in level 2 studies

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

The considered references were evaluated independently by at least two reviewers with the explicit criteria of the NICE (National Institute for Clinical Excellence) for the questions about diagnoses and of SIGN (Scottish Intercollegiate Guidelines Network) for the questions on prognosis, aetiology, and treatment. The differences were resolved by means of consensus.

For those questions not directly adapted from the base clinical practice guidelines (CPGs), the evaluated references were summarized in the form of evidence tables, which served to draw up a "formal evaluation" or "reasoned opinion" which is the basis for formulating the final recommendations.

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

2008 Original Guideline

For those questions not directly adapted from the base clinical practice guidelines (CPGs), the evaluated references were summarized in the form of evidence tables, which served to draw up a "formal evaluation" or "reasoned opinion" which is the basis for formulating the final recommendations.

With regard to the previous recommendations, the update has supposed:

- Recommendation not modified: it coincides with the one recommended in the previous CPG.
- Recommendation completed: the recommendation goes along the same line as the previous version but the new evidence completes or expands the previous recommendation.
- Modified Recommendation: the new evidence means a relevant change in the recommendation.

2013 Reaffirmation

In May 2012, an expert committee was convened to review the currency of the guideline using the following process:

- Formulation of key questions considering the previous version
- Searching for new evidence on the questions through a systematic search of the primary and secondary sources
- Evaluation and synthesis of evidence on the basis of explicit criteria
- External review

Rating Scheme for the Strength of the Recommendations

Grades of Recommendation

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C - A volume of evidence comprised by studies classified as 2+ directly applicable to the guidelines' target population which demonstrates great consistency among them; or evidence extrapolated from studies classified as 2++.

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C Evidence level 3

D Evidence level 4

**Adapted from the *Oxford Centre for Evidence-based Medicine Levels of Evidence* and the Centre for Reviews and Dissemination *Report Number 4* (2001)

Cost Analysis

A formal cost analysis was not performed and published cost-analyses were not reviewed.

Method of Guideline Validation

External Peer Review

Description of Method of Guideline Validation

These Guidelines have been evaluated by external reviewers who are experts in the area of hypertension as well as in the methodology field, by means of a previously designed instrument, so that each proposal for modification must be justified with its corresponding bibliographical reference.

These guidelines have the endorsement of the Basque Family and Community Medicine Society (Osatzen), of the Arterial Hypertension and Cardiovascular Risk Society of the Basque Country (Eusten), and of the Basque Hypertension and Cardiovascular Society (SovasAHT). Members of Osatzen and Eusten have collaborated in the authorship and review and members of SovasAHT in reviewing it.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is specifically stated for each recommendation (see "Major Recommendations").

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Appropriate management of patients with hypertension

Potential Harms

It is necessary to take into account the profile of adverse effects in the choice of antihypertensive drugs.

See Appendix 10 in the original guideline document for a full list of antihypertensive drug adverse effects, interactions, and precautions.

Contraindications

Contraindications

Thiazides: Do not use in case of advanced chronic renal insufficiency, hypocalcaemia, allergy to sulphonamides.

Potassium-sparing agents: Contraindicated in renal insufficiency.

Spironolactone: Avoid in pregnancy.

Beta blockers: Contraindications include cardiac blockage, intense bradycardia, cardiogenic shock. Avoid in first trimester of pregnancy.

Angiotensin converting enzyme inhibitors (ACEI) and angiotensin receptor blockers: Contraindications include bilateral renal stenosis or unilateral in single kidney; history of angioedema associated with ACEI. Also contraindicated in pregnancy.

Dihydropyridine (DHP) calcium antagonists: Contraindications include cardiogenic shock, unstable angina, recent acute myocardial infarction (AMI); porphyria (nifedipine).

Non-DHP calcium antagonists: Contraindications include atrioventricular (AV) blockage (without pacemaker), sick sinus syndrome (without pacemaker), severe bradycardia, left cardiac insufficiency. Avoid their association with beta blockers due to the risk of blockages.

DHP and non DHP calcium antagonists: Do not use in pregnancy (safety unclear).

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Audit Criteria/Indicators

Chart Documentation/Checklists/Forms

Clinical Algorithm

Foreign Language Translations

Patient Resources

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

IOM Care Need

Getting Better

Living with Illness

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

Rotaeche R, Aguirrezabala J, BalaguÃ© L, GorroÃ±ogoitia A, Idarreta I, MariÃ±elarena E, Mozo C, Ruiz de Velasco E, Torcal J. Clinical practice guidelines on arterial hypertension. 2007 update. Vitoria-Gasteiz: Basque Health System-Osakidetza; 2008. 135 p.

Adaptation

Three previously published guidelines formed the base of this guideline:

- Hypertension. Management of hypertension in adults in primary care. Clinical Guideline 18. National Institute for Clinical Excellence. 2004;Clinical Guideline 18.
- Khan NA, McAlister FA, Rabkin SW, Padwal R, Feldman RD, Campbell NR, et al. The 2006 Canadian Hypertension Education Program recommendations for the management of hypertension: Part II - Therapy. Can J Cardiol. 2006;22(7):583-93.
- Williams B, Poulter NR, Brown MJ, Davis M, McInnes GT, Potter JF, et al. British Hypertension Society guidelines for hypertension management 2004 (BHS-IV): summary. BMJ. 2004;328(7440):634-40.

Date Released

2002 (revised 2008; reaffirmed 2013 Jun)

Guideline Developer(s)

Basque Health System - Osakidetza - State/Local Government Agency [Non-U.S.]

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Guideline Committee

Arterial Hypertension Update Committee

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Financial Disclosures/Conflicts of Interest

José Ramón Aguirrezabala Jaca, Laura Balagué Gea, Ana Gorroñogoitia Iturbe, Ina Idarreta Mendiola, Carmela Mozo Avellaned, Rafael Rotaeche del Campo, Eulali Mariñelarena Mañeru, Elena Ruiz de Velasco, Jesús Torcal Laguna, Fernando Arós Borau, Mónica Ausejo Segura, Julián Bajo García, Alfonso Casi Casanellas, Juan Antonio Divisón Garrote, Arritxu Etxeberria Agirre, Félix Miguel García, Ana Lourdes Iglesias, Julián Ocharán, Jose Antonio Quindimil and Ramón Saracho Rotaeche declared their absence of conflicts of interest. Jesús Morán Barrios received financing from the industry for attending conferences. Blanca Novella Arribas participated as speaker in a course financed by the pharmaceutical industry. Mariano de la Figuera von Wichman received prescription-linked incentives from the ICS (Catalan Health Institute). He also received financing from different pharmaceutical companies for attending courses, as speaker in conferences, participation in research and consulting work.

Guideline Endorser(s)

Arterial Hypertension and Cardiovascular Risk Society of Basque Country - State/Local Government Agency [Non-U.S.]

Basque Family and Community Medicine Society - State/Local Government Agency [Non-U.S.]

Basque Hypertension and Cardiovascular Society - State/Local Government Agency [Non-U.S.]

Guideline Status

This is the current release of the guideline.

The Basque Health System-Osakidetza reaffirmed the currency of this guideline in June 2013.

Guideline Availability

Electronic copies: Not available at this time.

Print copies: Available from Osakidetza y Departamento de Sanidad, Administración de la CC.AA. del País Vasco, C/ Alava, nº 45, 01006 Vitoria - Gasteiz; Email: coordinacion@osakidetza.net, osteba-san@ej-gv.es; Web site: http://www.osakidetza.euskadi.net/v19-oskhome/es

Availability of Companion Documents

The following forms are available in the appendices of the original guideline document:

- Instructions for the use of ambulatory blood pressure monitoring (ABPM)
- Framingham Tables for estimating coronary risk at 10 years adapted to the Spanish population (REGICOR) (for men, women, diabetic men, and diabetic women)

In addition, audit indicators are provided in the appendices of the original guideline document.

A Spanish version of the original guideline document is available from the Osakidetza Web site .

Patient Resources

The following forms are available in the appendices of the original guideline document:

- Rules for home self-measurement of blood pressure
- Instructions for the patient on the ambulatory blood pressure monitoring
- Low-sodium diet instruction sheet

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

NGC Status

This summary was completed by ECRI Institute on November 30, 2010. The information was verified by the guideline developer on December 12, 2010. The currency of the guideline was reaffirmed by the developer in June 2013 and this summary was updated by ECRI Institute on October 23, 2013.

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